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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Kaoru Yamada

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EXAMINER

WALDBAUM, SAMUEL A

ART UNIT

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1792

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/564,980	Applicant(s) YAMADA ET AL.	
	Examiner SAMUEL A. WALDBAUM	Art Unit 1792	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 May 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 62-97 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 62-70 and 74-97 is/are rejected.
- 7) ☒ Claim(s) 71-73 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. In the reply filed May 13, 2008 the applicant cancelled claims 1-61 and added claims 62-97. The previous rejection is hereby withdrawn in favor of the new rejection found below.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 62, 67, 71, 74, 75, 85, 89 and 91-92 rejected under 35 U.S.C. 103(a) as being unpatentable over Furusawa et al (U.S. 6,220,935, hereafter '935) in view of Redeket et al (U.S. pgpub. 2003/0041879, hereafter '879).

4. Claim 62: '935 teaches substrate holders that are composed of rollers that have a clamp portion that hold the edge of the wafer (fig. 1 and 2, parts 8a-f). '935 does not teach a holder suction unit. '879 is a substrate processing apparatus. '074 teaches removing fluid from a roller using a vacuum source (fig. 1, part V, [0021]). It would have been obvious to one of ordinary

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skill in the art at the time the invention was made to have used a vacuum source as taught by `074 from the clamp portion in apparatus `935 to remove fluid from the roller where the wafer touches the roller.

5. Claim 67: `935 teaches that the rollers uses friction to hold the wafer (fig. 2, col. 3, line 20-col. 4, line 40).

6. Claim 71: `879 teaches that suction unit is in communication with a vacuum source ([0021]).

7. Claim 74 and 91: `935 teaches supplying fluid to the rollers (col. 4, lines 15-25).

8. Claim 75 and 92: `879 teaches that the vacuum nozzle is located ahead of a supply nozzle (fig. 1, the vacuum port, part V is in roller, part 15c, where there is a fluid supply line, parts 19 and 21).

9. Claim 85: Claims directed to apparatus must be distinguished from prior art in terms of structure rather than function. *In re Danly*, 263 F.2d 844, 847, 120 USPQ 528, 531 (CCPA). “[A]pparatus claims cover what a devices is not what a device does” *Hewlett-Packard Co. v. Bausch & Lomb Inc.*, 909 F.2d 1464, 1469, 15 USPQ2d 1525, 1528 (Fed. Cir. 1990), meaning that the apparatus `935 in view of `879 to turn off the vacuum port when not needed.

10. Claim 88: `935 teaches the groove for the clamp (see claim 62 above), where the groove goes around the roller (see fig. 2, the dashed line shows the groove).

11. Claim 89: See claim 62 above. `935 teaches rotating the rollers which rotates the wafer (fig. 2), supplying fluid to the substrate as it is being rotated (fig. 2, part 18, col. 3, lines 20-45). Where `879 teaches using a vacuuming source taking fluid off the roller ([0021]).

Claims 63-66, 76, 86-87 and 90 rejected under 35 U.S.C. 103(a) as being unpatentable over Furusawa et al (U.S. 6,220,935) in view of Redeket et al (U.S. pgpub. 2003/0041879) as applied to claim 62 and 74 above further in view of Saito et al (U.S. pgpub 2005/0092351, hereafter '351).

'935 and '879 teaches all the limitations of claims 62 and 74 above.

12. Claims 63 and 90: '935 and '879 do not teach a periphery suction unit. '351 is a substrate processing apparatus. '351 teaches a periphery fluid applicator and suction unit (fig. 8, fluid applicator, part 15, suction unit, part 20, [0060]-[0068]), thus allowing the periphery of the substrate to be cleaned and have that fluid removed, thus drying the periphery ([0060]-[0068]). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have used a periphery fluid applicator and suction unit as taught by '351 in apparatus '935 in view of '879 to clean and dry the periphery of the substrate.

13. Claims 64, 86 and 87: '351 does not specify what material is used for making the peripheral suction unit. The selection of something based on its known suitability (the suction unit made up of a electrically conductive material, for example metal or made of a chemical resistant fluororesin) for its intended use has been held to support a *prima facie* case of obviousness. *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945).

14. Claim 65: '351 teaches that the periphery liquid applying and suction unit as a self contained unit from the rollers (fig. 8).

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15. Claim 66: '351 teaches that the periphery suction unit comprises a nozzle (fig. 8, part 21). '935 and '879 do not specify the structure for holder suction unit. It would have been obvious to one of ordinary skill in the art at the time the invention.

16. Claim 76: '935 teaches a plurality of fluid supply nozzles, where a nozzle is for each roller (fig. 2, col. 4, lines 15-25). '351 teaches using a nozzle for a vacuum port ([0067]). '879 teaches that the vacuum is placed after the supply point (fig. 1) such that the vacuum can suction up the fluid after the fluid is applied. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have placed a vacuum nozzle as taught by '351 and '879 with each roller in apparatus '935 thus to associated a vacuum suction with a fluid nozzle that is associated with each nozzle.

Claims 68 rejected under 35 U.S.C. 103(a) as being unpatentable over Furusawa et al (U.S. 6,220,935) in view of Redeket et al (U.S. pgpub. 2003/0041879) as applied to claim 62 above further in view of Weitz (U.S. pgpub. 2003/0167948, hereafter '948).

'935 and '879 teaches all the limitations of claim 62 above.

17. Claim 68: '935 and '879 do not teach that the holder suction unit is located adjacent to the roller. '948 is solving the same problem as the applicant of removing fluid from a roller using a vacuum source. '948 teaches a vacuum nozzle located adjacent to a roller (fig. 5, part 53, the vacuum nozzle) to remove fluid from the roller (fig. 5, [0034]). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have put the vacuum port next to the roller as taught by '948 in apparatus '935 in view of '879 to remove fluid from the roller.

Claims 77 rejected under 35 U.S.C. 103(a) as being unpatentable over Furusawa et al (U.S. 6,220,935) in view of Redeket et al (U.S. pgpub. 2003/0041879) as applied to claim 62 above further in view of Maekawa et al (U.S. 5,868,866, hereafter '866).

'935 and '879 teaches all the limitations of claim 62 above.

18. Claim 77: '935 and '879 do not teach a drying gas supply to substrate. '935 and '879 do not teach supplying a drying gas. '866 is a substrate processing apparatus. '866 teaches using a drying gas to dry the substrate (col. 5, line 65-col. 6, line 5). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have used a drying gas as taught by '866 in apparatus '935 in view '879 to dry the substrate.

Claims 78-82 and 93-97 rejected under 35 U.S.C. 103(a) as being unpatentable over Furusawa et al (U.S. 6,220,935) in view of Redeket et al (U.S. pgpub. 2003/0041879) and Maekawa et al (U.S. 5,868,866) as applied to claim 77 above further in view of Mertens et al (U.S. pgpub 2002/0120106, hereafter '106).

'935, '879 and '866 teaches all the limitations of claim 77 above.

19. Claims 78 and 93-94: '935, '879 and '866 do not teach the particulars of supplying drying gas. '106 is a substrate processing apparatus. '106 teaches that a gas can be supplied perpendicular to the surface of the substrate (fig. 1, part 4, [0049], [0050]). It would have been obvious to one of ordinary skill in the art at the time the invention was made that the gas can be supplied perpendicular to the surface of the substrate as taught by '106 in apparatus '935 in view of '879 and '866 to have yield the predictable result of drying the surface of the substrate.

20. Claims 79 and 95: '106 teaches that the nozzles can be moveable from the outer area of the wafer to the interior of the wafer (fig. 1).

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21. Claims 80 and 96: '106 teaches that the arm can have a variable speed ([0050]).

22. Claims 81, 82 and 97: '935 teaches that a gas supply can be regulated by a valve (col. 4, lines 25-67). Claims directed to apparatus must be distinguished from prior art in terms of structure rather than function. *In re Danly*, 263 F.2d 844, 847, 120 USPQ 528, 531 (CCPA). “[A]pparatus claims cover what a device is not what a device does” *Hewlett-Packard Co. v. Bausch & Lomb Inc.*, 909 F.2d 1464, 1469, 15 USPQ2d 1525, 1528 (Fed. Cir. 1990), meaning that the drying gas is capable of being shut off when the nozzle approaches the edge of the wafer in apparatus '935 in view of '879, '866 and '106.

Claims 83 and 84 rejected under 35 U.S.C. 103(a) as being unpatentable over Furusawa et al (U.S. 6,220,935) in view of Redeket et al (U.S. pgpub. 2003/0041879) as applied to claim 62 above further in view of Maekawa et al (U.S. 5,868,866) and Mertens et al (U.S. pgpub 2002/0120106) and Olgado et al (U.S. pgpub 2003/0129850, hereafter '850).

'935 and '879 teaches all the limitations of claim 62 above.

23. Claim 83: See claims 77-82 above. '935, '879, '866 and '106 do not teach a controller for the apparatus. '850 is a substrate processing apparatus. '850 teaches using a microprocessor controller to control the different operations of the apparatus ([0051], [0053], [0063] and [0068]). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have included a microprocessor controller as taught by '850 in apparatus '935 in view of '879, '866 and '106 to have controlled the different conditions of operations.

24. Claim 84: See claim 83 above. '106 teaches using multiple gas nozzles (fig. 2). Claims directed to apparatus must be distinguished from prior art in terms of structure rather than function. *In re Danly*, 263 F.2d 844, 847, 120 USPQ 528, 531 (CCPA). “[A]pparatus claims

cover what a device is not what a device does” *Hewlett-Packard Co. v. Bausch & Lomb Inc.*, 909 F.2d 1464, 1469, 15 USPQ2d 1525, 1528 (Fed. Cir. 1990). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have had the controller to controller the gas rate at different nozzles.

Allowable Subject Matter

25. Claims 71-73 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The prior art does not teach such exacting particulars of the holder suction unit.

Response to Arguments

26. Applicant's arguments with respect to claim 62 have been considered but are moot in view of the new ground(s) of rejection. The newly cited art teaches the above limitation of claim 62 and therefore their arguments are currently moot.

Conclusion

27. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

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CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SAMUEL A. WALDBAUM whose telephone number is (571)270-1860. The examiner can normally be reached on M-TR 6:20-3:50, F 6:30-10:30 est.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Cleveland can be reached on 571-272-1418. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/S. A. W./
Examiner, Art Unit 1792

/FRANKIE L. STINSON/
Primary Examiner, Art Unit 1792